

THREE NEW SINO-HIMALAYAN COMPOSITAE

A. J. C. GRIERSON

***Cremanthodium dissectum* Grierson, sp. nov.**

Species affinis *C. Forrestii* J. F. Jeff., a quo foliis pinnatifidis differt.

Planta perennis, gracilis, scaposa, monocephala. *Radices* crassae. *Caulis* 25–30 cm. altus, costatus, erectus, pilis bruneis ad apicem exceptis glabratus, basi reliquiis fibrosis petiolorum cinctus. *Folia* radicalia petiolata; petioli 3–10 cm. longi, glabri, sulcati, ad bases vaginati; laminae 1–3.5 cm. longae, membranaceae, profunde pinnatifidae, supra parce pilosae, subtus glabratae; segmenta 5–9 linearia, acuminata, 0.5–3 cm. longa, jugis infimis saepissime inaequaliter furcatis et interdum iterum furcatis; folia caulina duo, inferius foliis radicalibus simile, superius (ad medium caulem) lineare. *Capitulum* hemisphaericum, nutans. *Phyllares* 8 late lanceolatae, acuminatae, 1.5 cm. longae, 4.5 mm. latae, virides, marginibus membranaceis latis fuscis ciliatis. *Ligulae* circiter 10, luteae, oblanceolatae, apicibus 3-dentatis, venis 7, 1.6 cm. longae, 6 mm. latae, tubis brevibus 2 mm. longis. *Stylus* 1.5 cm. longus, apice purpureus, puberulus, ramis subcylindricis acutis. *Pappus* 8 mm. longus, fulvus. *Flores* disci dilute virides, 8 mm. longi; partes superiores $\frac{2}{3}$ cylindraceae subcampanulatae, apicibus 5-lobatis lobis 1.75 mm. longis 0.75 mm. latis. *Filamenta* 5.5 mm. longa. *Antherae* 5 mm. longae, purpureae, basibus loculorum leviter divergentibus rotundatis et appendicibus 1 mm. longis lanceolatis inclusis. *Stylus* 1.5 cm. longus, apice purpureus puberulus, ramis subcylindricis acutis. *Pappus* fulvus 8 mm. longus, scaber. *Achaenia* immatura, 3 mm. longa, oblonga, compressa (?), glabra.

WEST CHINA. Yunnan, Taron Taru Divide, Mt. Tarulaka, 3000 m., mountain slopes in open sandy places, 3 Sept. 1938, T. T. Yu 20055 (holo. E).

C. dissectum and *C. pinnatifidum* (from Sikkim and Tibet) are the only species of *Cremanthodium* with pinnately divided leaves (see fig. 1, b & d). The latter species is generally a smaller plant, with the upper parts of the stem clothed with black hairs, and is more closely related to *C. Thomsoni*. Furthermore, its leaves are elliptic lanceolate in outline whereas those of *C. dissectum* are broadly ovate.

C. dissectum is easily distinguished from *C. Forrestii* by its deeply pinnatifid leaves (fig. 1, a & d). Further remarks on the relationship between these two species are made after the description of *C. lobatum*.

***Cremanthodium lobatum* Grierson, sp. nov.**

Species affinis *C. Forrestii* J. F. Jeff. et *C. dissecto* Grierson a quibus foliis lobatis et subtus villosis differt.

Planta perennis, gracilis, scaposa, monocephala. *Caulis* 25 cm. altus, costatus, erectus, parce et sordide araneosus, basi reliquiis fibrosis petiolorum cinctus. *Folia* radicalia petiolata; petioli 4–9 cm. longi, parce araneosi, sulcati, ad bases vaginantes; laminae 1–2 cm. longae, 1.5–2.5 cm. latae, membranaceae, sagittato-lobatae, irregulariter 7–9 lobatae, lobis mucro-

natis, supra ad nervos pubescentes, subtus pilis villosis crispatis ad bases incrassatis conspersae; folia caulina duo, inferius foliis radicalibus simile, superius (ad medium caulem) lineare. *Capitulum* hemisphaericum, nutans. *Phyllares* 8, 1.3 cm. longae, 3.5–5 mm. latae, late lanceolatae acutae, virides, marginibus membranaceis latis fuscis (in sicco) ciliatis. *Ligulae* circiter 10, luteae, 1.4 cm. longae, 9 mm. latae, oblanceolatae, apicibus tridentatis, venis 7, tubis brevibus 2 mm. longis. *Staminodia* 5. *Stylus* 1 cm. longus, apice purpureus puberulus, ramis subcylindricis acutis. *Pappus* 6 mm. longus, fulvus. *Flores disci* in sicco straminei, 8 mm. longi; partes superiores

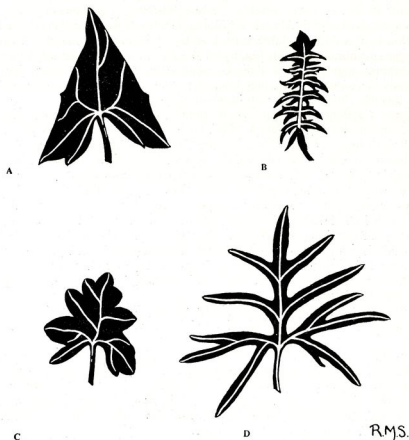


FIG. 1. Leaf-outlines of *Cremanthodium* species: a, *C. Forrestii*; b, *C. pinnatifidum*; c, *C. lobatum*; d, *C. dissectum*. All natural size.

$\frac{7}{8}$ cylindricae subcampanulatae, apicibus 5-lobatis, lobis 1.5 mm. longis 1 mm. latis. *Filamenta* 5.5 mm. longa. *Antherae* 3.5 mm. longae, purpureae, basibus loculorum breviter sagittatis et appendicibus 0.75 mm. longis lanceolatis inclusis. *Stylus* 1.2 cm. longus, apice purpureus puberulus, ramis subcylindricis acutis. *Pappus* fulvus, 6 mm. longus, scaber. *Achaenia* immatura, 3 mm. longa, oblonga, compressa (?) glabra.

WEST CHINA. Yunnan, Upper Kuikiang Valley (Clulung) Tsugum, 3900 m., in alpine grassland, 7 Aug. 1938, T. T. Yu 19764 (holo. E).

While this plant is probably most closely related to *C. Forrestii* and *C. dissectum* its leaves are somewhat similar to those of *C. palmatum* subsp. *Benthami*. The latter differs, however, in having leafy peduncles which are densely purple hairy above and has a white pappus.

C. Forrestii, *dissectum* and *lobatum* have several features in common but are easily distinguishable by their leaves (fig. 1a, c & d).

In the proportions of the disc corollas *C. dissectum* and *C. lobatum* are identical and differ slightly from *C. Forrestii*. In the latter species the upper $\frac{3}{4}$ to $\frac{5}{8}$ is cylindrical-campanulate whereas in *C. dissectum* and *C. lobatum* the upper $\frac{7}{8}$ takes this shape; the remainder of the whole representing the basal tubular portion of the corolla.

Staminodes have been observed in the ray flowers of *C. dissectum* and *C. lobatum*. They appear to be only infrequently present in *C. Forrestii*, for, of the specimens at Edinburgh, they are to be found in Rock's 10076, 22391 and 23070. It may well be, however, that as more material of these new species comes to hand the presence or absence of staminodes will be found to be inconstant throughout.

In conclusion, these three related species may be summarized thus:—
Scapose plants with only 2 cauline leaves. Phyllaries 8–10, \pm glabrous, with dark brown margins (in sicco). Pappus fulvous.

Leaves entire hastate with 0–3(–7), teeth per side; \pm glabrous

C. Forrestii

Leaves pinnatifid with 5–9 acuminate segments; \pm glabrous

C. dissectum

Leaves 7–9 lobed, distinctly crisp villous beneath . . . *C. lobatum*

***Senecio atrofuscus* Grierson, sp. nov.**

Affinis *S. nodifloro* Chang et *S. drukenis* Marq. et Shaw a quibus habitu graciliore et foliis membranaceis glabris differt.

Planta perennis (?), capitulis 1–10 in racemos dispositis. *Caulis* herbaceus, erectus, 35–65 cm. altus, simplex, teres, leviter costatus. *Folia* glabra, membranacea, acuta vel acuminata, marginibus denticulatis vel argute dentatis parce et minute glanduloso-ciliatis; basalia et caulina inferiora ovata, basi cordata vel truncata, petiolata, petiolis usque ad 15 cm. longis, laminis 1.5–5 cm. longis 1–4 cm. latis; caulina mediana ovata—lineari-lanceolata, petiolata, 3–6(–8) cm. longa, 1–3.5 cm. lata; superiora linearia. *Pedunculi* adscendentes, 1.5–11 cm. longi, parce et sordide araneosi. *Capitula* nutantia, late campanulata. *Involucra* cum bracteis calyculatis sub 2-seriata, 0.6–0.8 cm. longa, 1–1.5 cm. lata; phyllares lineares, 13–17 (bractee calyculatae 6–9), trinerves, coriaceae, marginibus anguste membranaceis 2 mm. latae, apices versus atrofuscae, breviter ciliatae, infra medias virides, ad nervos glandulosae, ad bases rufescenti-pilosae. *Ligulae* circiter 12 per capitulum, ellipticae, luteae, ad apices tridentatae, partibus ex involucris exsertis 5–7 mm. longis 2.5–3 mm. latis. *Flores disci* in sicco straminei, 7 mm. longi, 5-dentati, apicibus dentium nigricantibus. *Filamenta* 3.5 mm. longa, partibus 1 mm. longis sub antheris incrassatis. *Antherae* 2 mm. longae, breviter sagittatae, apicibus acutae. *Stylus* breviter exsertus, truncatus. *Achaenia* 3.5 mm. longa (immatura), non compressa, 5-costata. *Pappus* florum disci aequilongus, setis albis scabris deciduis (?).

S.E. TIBET. Kongbo, Deyang-La, 390m., involucre green, tipped blackish-brown, ray florets yellow, grassy slopes, 11 Aug. 1947, *Ludlow, Sherriff & Elliot* 14324 (holo. BM, iso. E.)

WEST CHINA. Yunnan, *Forrest* 30006 (E, BM).

Senecio atrofuscus is allied to *S. nodiflorus* Chang but is more slender and finer in all its parts. It differs in having glabrous membranous leaves and smaller capitula. It is also allied to *S. drukensis* Marq. & Shaw which has smaller capitula and leaves which are tomentose especially beneath, as are those of *S. nodiflorus*, but narrower than in this species. All three species are closely similar in respect of the blackish phyllaries, the black-toothed disc flowers and in the degree and pattern of thickening of the filaments below the anthers.

As the description shows L, S & E 14324 varies greatly in habit, in the toothing of the leaves and in the number of flower heads. Such is the variation that Mr. Ludlow in a recent letter admits that "if I had not collected this gathering myself I should have said there had been a mix-up."

The *Forrest* specimens, apart from the capitula, are more slender than the Tibetan ones. They are only 35 cm. high and bear 1-3 heads. The lower leaves are elliptic-ovate occasionally truncate at the base but not cordate. The petioles measure 4.5 cm. long and the laminae 1-3 cm. long and 0.6-1.5 cm. broad. In size and detail the capitula from both areas are similar. In the Tibetan specimens, however, the number of calyculate bracts is approximately half that of the phyllaries, as they appear to be in *S. nodiflorus* and *S. drukensis*. In the Chinese specimens there are 19 phyllaries and 12-13 bracts.

Guides to Garden Herbs and Trees (reviews).—The late Mr. F. K. Makins achieved a considerable reputation with his very useful books on the identification of woody plants. But that did not mean that he had neglected the study of herbs, and the present volume* applies to cultivated herbaceous plants essentially the same methods as those previously employed for trees and shrubs. There is a key to families, keys to genera under each family, a section of copious illustrations and an annotated catalogue of species.

This book, the title page tells us, is a guide to more than 1000 species, but nowhere is there any estimate of the number of species that might have been included had the work been an encyclopedia of many volumes. Probably not less than thirty times that number. Selection has therefore been rigorous and, as in all such books, its details invite criticism. Let it be said at once that Mr. Makins seems to have been very creditably

* *Herbaceous Garden Flora*, by F. K. Makins. London, J. M. Dent & Sons, 1957. Pp. x+373, 11 plates. Price thirty-five shillings.